

**HYDERABAD, INDIA**

Latitude = 17.45 N

WMO No. 431280

Longitude = 78.47 E

Elevation = 1788 feet

Period of Record = 1973 to 1995

Average Pressure = 27.96 inches Hg

**Design Criteria Data**

	Design Value	Mean Coincident (Average) Values			
		Wet Bulb Temperature (°F)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
<b>Dry Bulb Temperature (T)</b>	(°F)				
Median of Extreme Highs	107	71	65	8.5	NW
0.4% Occurrence	104	71	67	8.8	NW
1.0% Occurrence	103	71	69	8.4	NW
2.0% Occurrence	100	71	73	7.9	NW
Mean Daily Range	16	-	-	-	-
97.5% Occurrence	62	57	65	1.3	N
99.0% Occurrence	59	55	61	0.7	NNE
99.6% Occurrence	56	52	56	0.7	N
Median of Extreme Lows	54	51	53	0.5	N
<b>Wet Bulb Temperature (T<sub>wb</sub>)</b>	(°F)	Mean Coincident (Average) Values			
Median of Extreme Highs	84	87	177	11.4	WNW
0.4% Occurrence	78	89	133	8.0	W
1.0% Occurrence	77	88	128	8.2	W
2.0% Occurrence	76	86	125	8.5	W
<b>Humidity Ratio (HR)</b>	(gr/lb)	Mean Coincident (Average) Values			
Median of Extreme Highs	172	88	1.06	12.3	NE
0.4% Occurrence	142	82	0.88	6.2	W
1.0% Occurrence	137	80	0.85	5.9	W
2.0% Occurrence	134	79	0.83	7.1	W
<b>Air Conditioning/</b>		T ≥ 93°F	T ≥ 80°F	T <sub>wb</sub> ≥ 73°F	T <sub>wb</sub> ≥ 67°F
<b>Humid Area Criteria</b>	# of Hours	855	4187	2090	5497

**Other Site Data**

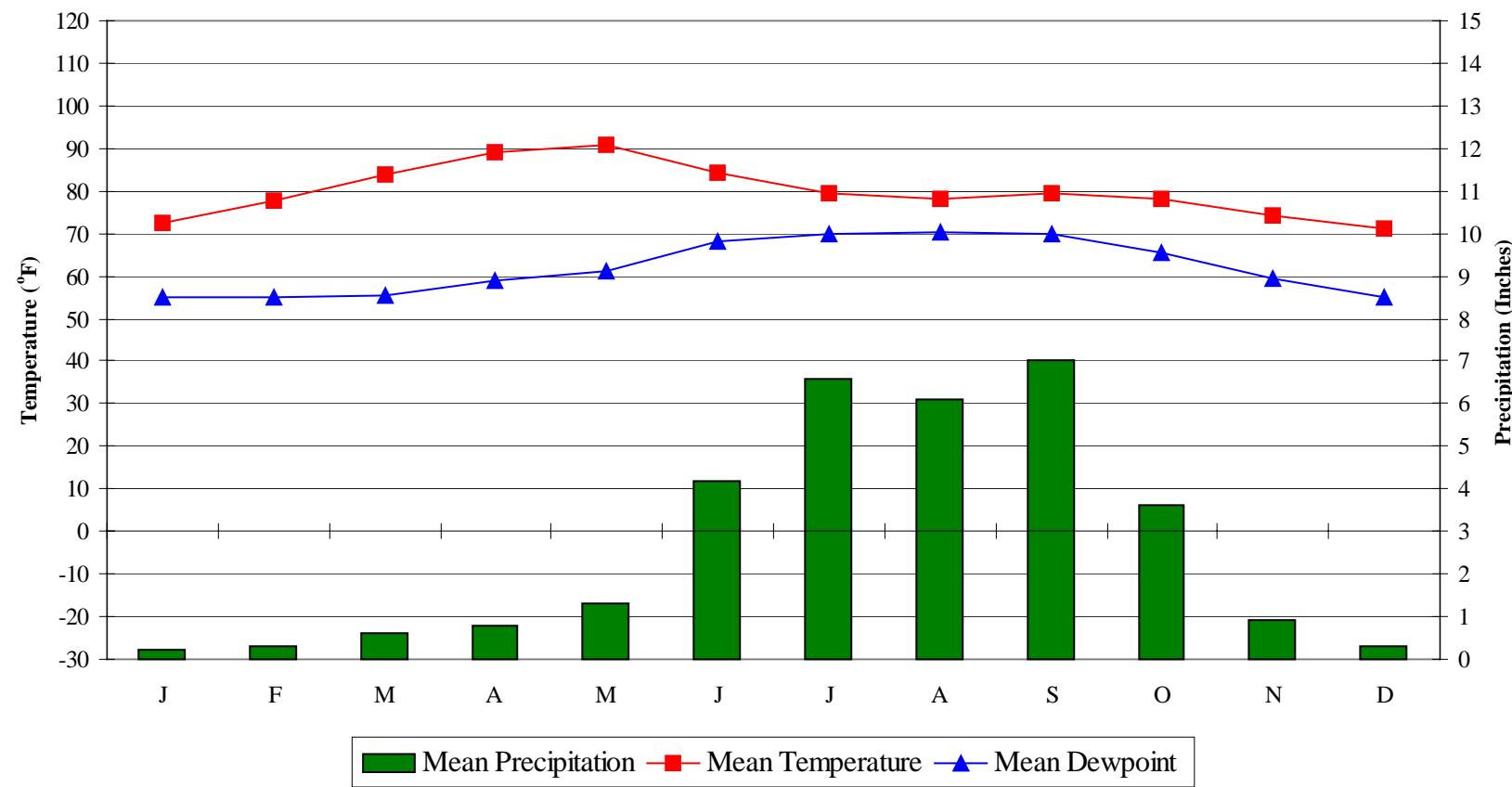
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
10	N/A	N/A	2.1 + 4.7
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft <sup>2</sup> )	Average Annual Freeze-Thaw Cycles (#)
82.4	N/A	N/A	0

\*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.

**HYDERABAD, INDIA**

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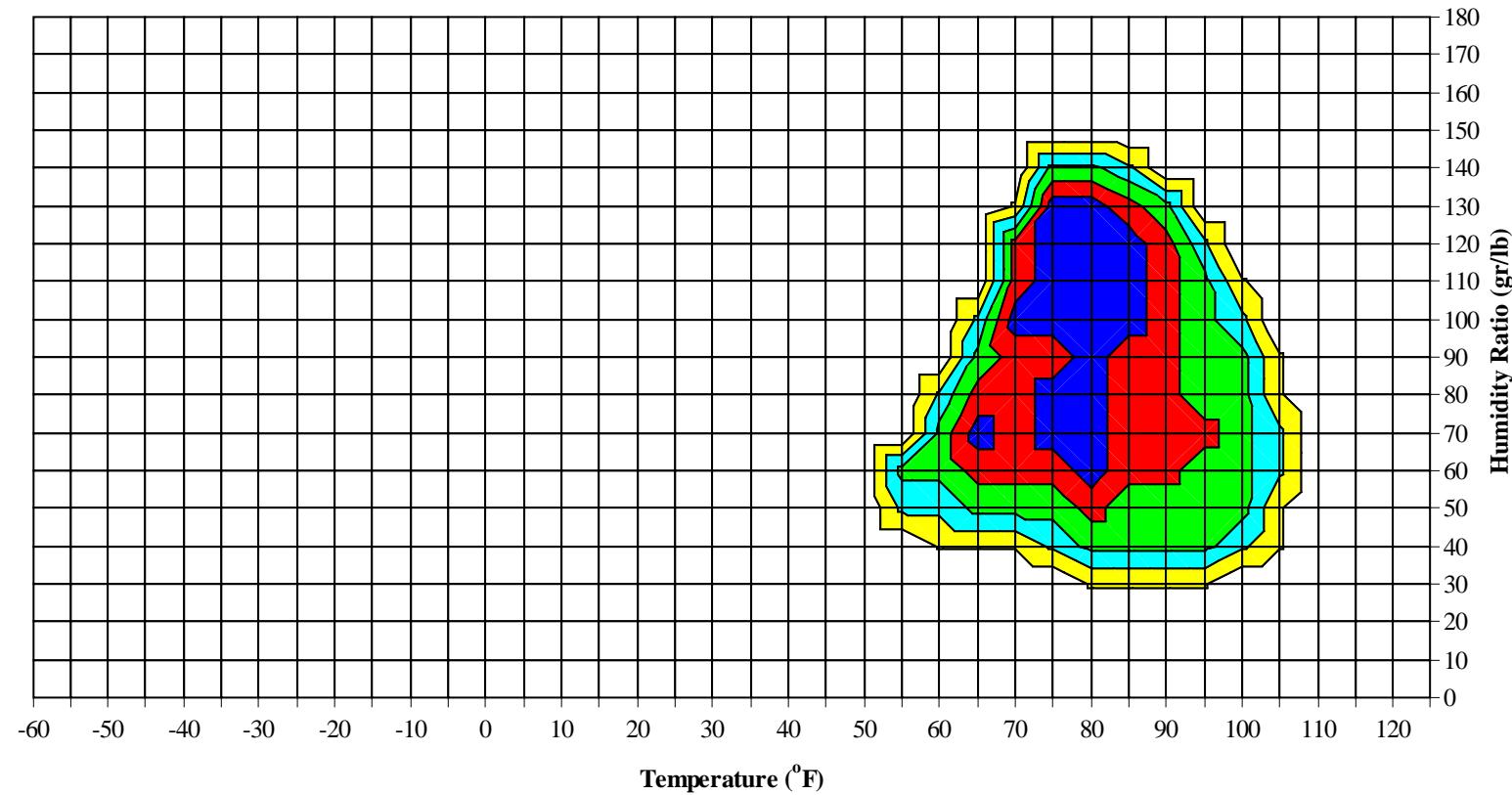
**Average Annual Climate**



**HYDERABAD, INDIA**

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### Long Term Psychrometric Summary

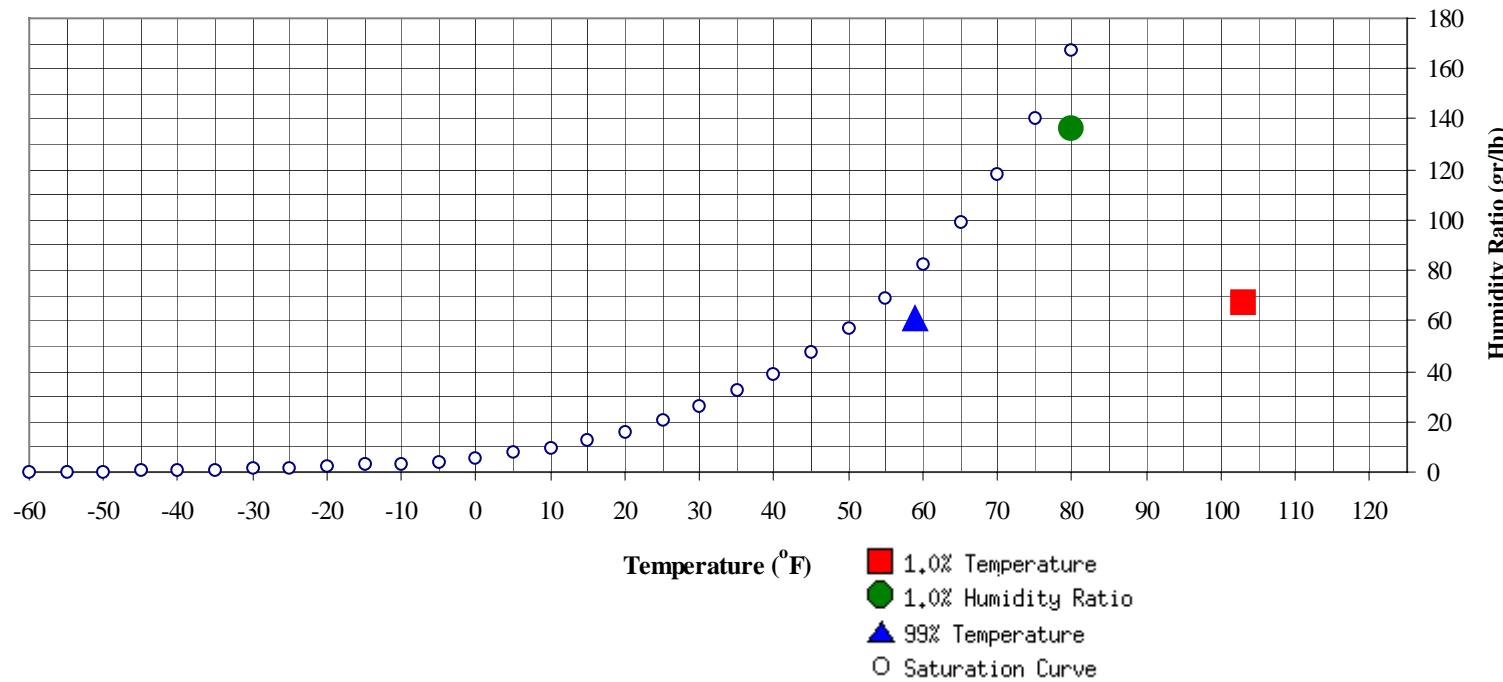


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

HYDERABAD, INDIA

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## Psychrometric Summary of Peak Design Values



	MCHR (°F)	Enthalpy (btu/lb)	1.0% Humidity Ratio	MCDB (°F)	MCWB (°F)	MC Dewpt (°F)	Enthalpy (btu/lb)
<b>99% Dry Bulb</b>	59	61.3	23.7	136.5	79.9	75.5	40.6

	MCHR (°F)	MCWB (°F)	Enthalpy (btu/lb)
<b>1.0% Dry Bulb</b>	103	67.4	35.4

**HYDERABAD, INDIA**

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**Dry-Bulb Temperature Hours For An Average Year (Sheet 1 of 5)**

Period of Record = 1973 to 1995

Temperature Range (°F)	January						February						March								
	Hour Group (LST)			M C W B Total Obs (°F)	Hour Group (LST)			M C W B Total Obs (°F)	Hour Group (LST)			M C W B Total Obs (°F)				M C W B Total Obs (°F)					
	01 To 08	09 To 16	17 To 00		01 To 08	09 To 16	17 To 00		01 To 08	09 To 16	17 To 00		01 To 08	09 To 16	17 To 00		01 To 08	09 To 16	17 To 00		
	To 08	To 16	To 00		To 08	To 16	To 00		Total Obs	Total Obs	Total Obs		To 08	To 16	To 00		Total Obs	Total Obs	Total Obs		
105 / 109																					
100 / 104																	5	2	7	68.0	
95 / 99																	53	35	88	66.8	
90 / 94		1	0	1	63.9				3	1	4	65.6					1	64	45	111	66.4
85 / 89	0	23	10	33	63.4				30	17	47	64.2					1	29	54	85	66.7
80 / 84	1	68	47	116	63.9				0	50	40	64.8					25	41	73	139	66.2
75 / 79	1	58	71	130	63.2				1	51	56	64.9					101	42	30	173	65.8
70 / 74	20	29	74	123	62.9				15	27	68	64.3					96	12	8	116	64.1
65 / 69	90	45	35	171	61.4				94	46	37	63.4					19	1	1	21	60.2
60 / 64	92	20	10	122	57.8				82	17	4	103	60.7				4	0	0	4	55.8
55 / 59	38	3	1	42	53.5				28	1	1	29	55.5				0			0	54.0
50 / 54	6		0	6	48.3				0		0	0	49.0								

**Caution:** This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

**HYDERABAD, INDIA**

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**Dry-Bulb Temperature Hours For An Average Year (Sheet 2 of 5)**

Period of Record = 1973 to 1995

Temperature Range (°F)	April						May						June						
	Hour Group (LST)			M C W B Total Obs (°F)	Hour Group (LST)														
	01 To 08	09 To 16	17 To 00		01 To 08	09 To 16	17 To 00		01 To 08	09 To 16	17 To 00		01 To 08	09 To 16	17 To 00		01 To 08	09 To 16	17 To 00
	08	16	00		08	16	00		08	16	00		08	16	00		08	16	00
105 / 109		2	1	3	69.0		14	10	24	71.2		2	1	3	72.2				
100 / 104	0	43	25	68	69.4	0	58	38	96	71.2		11	6	17	73.6				
95 / 99	0	74	48	122	69.6	0	56	52	108	71.8		24	21	44	73.9				
90 / 94	1	39	64	104	69.6	15	50	70	136	70.9	3	42	47	91	73.7				
85 / 89	25	37	63	125	69.4	83	40	46	170	70.8	20	52	50	122	73.6				
80 / 84	113	38	28	179	69.2	103	23	21	147	70.8	57	59	63	178	73.0				
75 / 79	87	8	9	103	68.2	42	5	9	56	70.2	130	46	45	222	72.2				
70 / 74	13	1	1	14	65.6	6	1	2	8	69.4	30	5	7	42	71.0				
65 / 69	1	0	1	63.4		0	0		0	61.7				0	0	67.0			
60 / 64	0	0	0	56.5		0			0	54.0									
55 / 59																			
50 / 54																			

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**HYDERABAD, INDIA**

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**Dry-Bulb Temperature Hours For An Average Year (Sheet 3 of 5)**

Period of Record = 1973 to 1995

Temperature Range (°F)	July						August						September						
	Hour Group (LST)			M C W B Total Obs (°F)	Hour Group (LST)			M C W B Total Obs (°F)	Hour Group (LST)			M C W B Total Obs (°F)				M C W B Total Obs (°F)			
	01 To 08	09 To 16	17 To 00		01 To 08	09 To 16	17 To 00		01 To 08	09 To 16	17 To 00		01 To 08	09 To 16	17 To 00		01 To 08	09 To 16	17 To 00
	To 08	To 16	To 00		To 08	To 16	To 00		Total Obs	Total Obs	Total Obs		To 08	To 16	To 00		Total Obs	Total Obs	Total Obs
105 / 109																			
100 / 104									0	0	67.0					0	0	0	77.0
95 / 99		1		1	75.6				0	0						0	0	0	79.0
90 / 94	0	19	15	34	74.2				0	4	2	5	74.8			1	16	3	21 73.1
85 / 89	0	48	40	88	74.1				0	43	28	72	74.0			1	62	34	98 73.6
80 / 84	17	78	81	176	73.5				3	85	79	167	73.6			6	79	75	159 73.4
75 / 79	134	86	86	306	72.2				99	94	104	297	72.2			113	67	105	285 72.3
70 / 74	97	15	27	139	70.9				146	23	35	204	70.8			117	16	22	155 70.6
65 / 69	0		0	0	67.7				0	0	0	0	67.3			1	0		1 65.9
60 / 64										0	0	0	43.0						
55 / 59										0	0	0							
50 / 54																			

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**HYDERABAD, INDIA**

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**Dry-Bulb Temperature Hours For An Average Year (Sheet 4 of 5)**

Period of Record = 1973 to 1995

Temperature Range (°F)	October						November						December						
	Hour Group (LST)			M C W B Total Obs (°F)	Hour Group (LST)			M C W B Total Obs (°F)	Hour Group (LST)			M C W B Total Obs (°F)				M C W B Total Obs (°F)			
	01 To 08	09 To 16	17 To 00		01 To 08	09 To 16	17 To 00		01 To 08	09 To 16	17 To 00		01 To 08	09 To 16	17 To 00		01 To 08	09 To 16	17 To 00
	To 08	To 16	To 00		To 08	To 16	To 00		Total Obs	Total Obs	Total Obs		To 08	To 16	To 00		Total Obs	Total Obs	Total Obs
105 / 109																			
100 / 104																			
95 / 99		1	0	1	71.9														
90 / 94	0	20	3	24	68.7				1	1	2	69.2				0	0	0	64.8
85 / 89	1	65	30	97	70.0	0	24	3	27	67.4					5	0	5	64.7	
80 / 84	3	72	65	140	70.7	3	89	52	143	66.2	0	67	30	96	63.9				
75 / 79	46	71	101	217	70.5	4	60	74	138	66.3	1	81	71	154	63.0				
70 / 74	150	19	47	215	68.8	87	47	71	206	66.2	18	32	75	125	63.0				
65 / 69	38	0	2	40	62.9	64	16	28	108	61.5	61	40	47	148	60.8				
60 / 64	10		0	10	59.3	56	4	10	70	57.7	91	21	23	135	57.3				
55 / 59	0			0	55.5	26	0	0	26	53.8	65	2	2	69	53.6				
50 / 54						0			0	50.0	11	0	0	11	49.3				

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**HYDERABAD, INDIA**

WMO No. 431280

**Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)**

Period of Record = 1973 to 1995

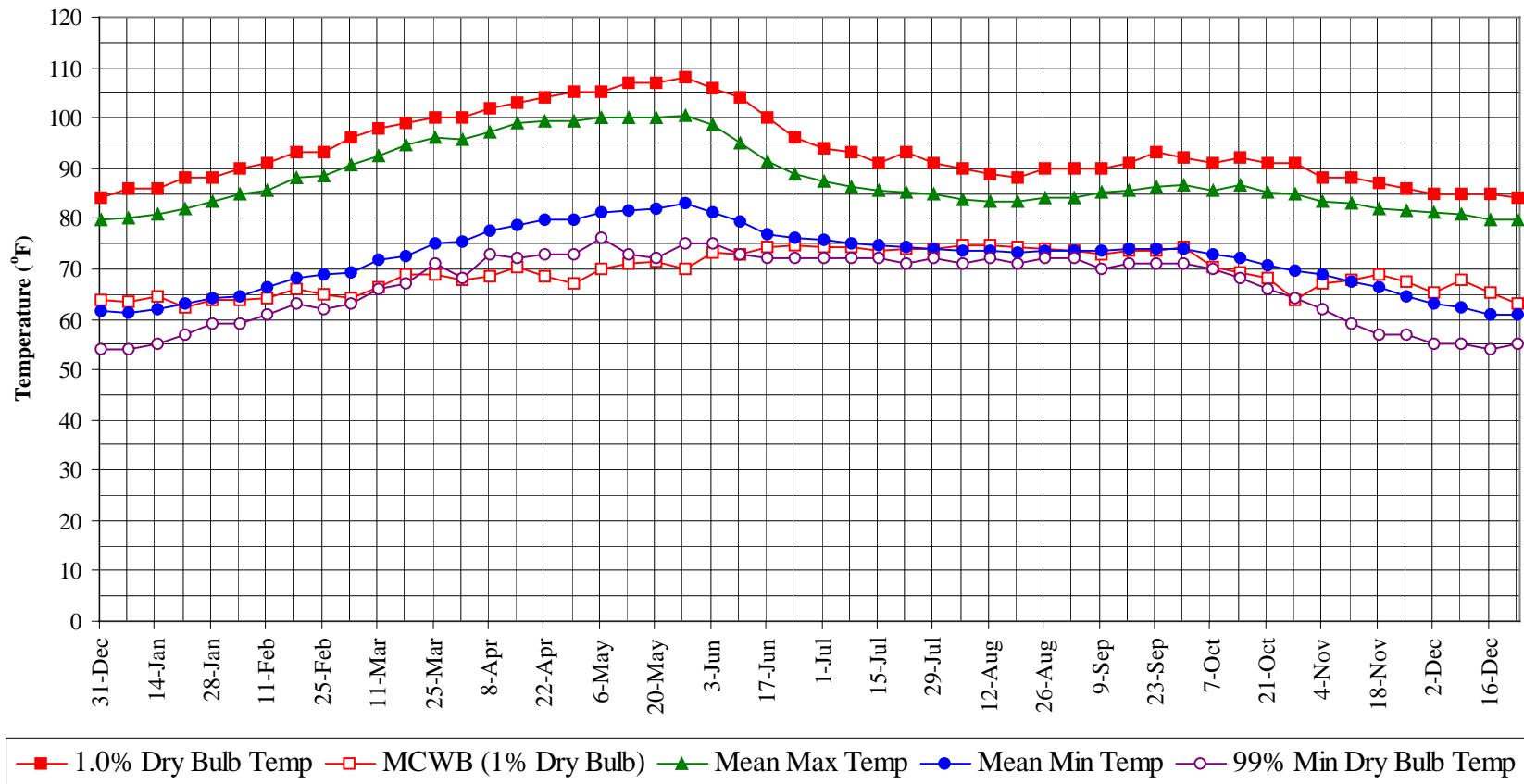
Temperature Range (°F)	Annual Totals					
	Hour Group (LST)			Total Obs	M C W B	
	01 To 08	09 To 16	17 To 00		(°F)	
<b>105 / 109</b>		17	11	28	71.1	
<b>100 / 104</b>	1	116	70	188	70.6	
<b>95 / 99</b>	0	212	158	369	70.0	
<b>90 / 94</b>	22	285	267	574	69.8	
<b>85 / 89</b>	131	478	399	1009	70.3	
<b>80 / 84</b>	333	746	668	1746	69.6	
<b>75 / 79</b>	773	643	773	2189	69.1	
<b>70 / 74</b>	869	248	406	1524	66.9	
<b>65 / 69</b>	361	123	119	602	61.2	
<b>60 / 64</b>	280	46	46	372	57.4	
<b>55 / 59</b>	133	5	3	142	53.5	
<b>50 / 54</b>	17	0	0	17	49.0	

**Caution:** This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

**HYDERABAD, INDIA**

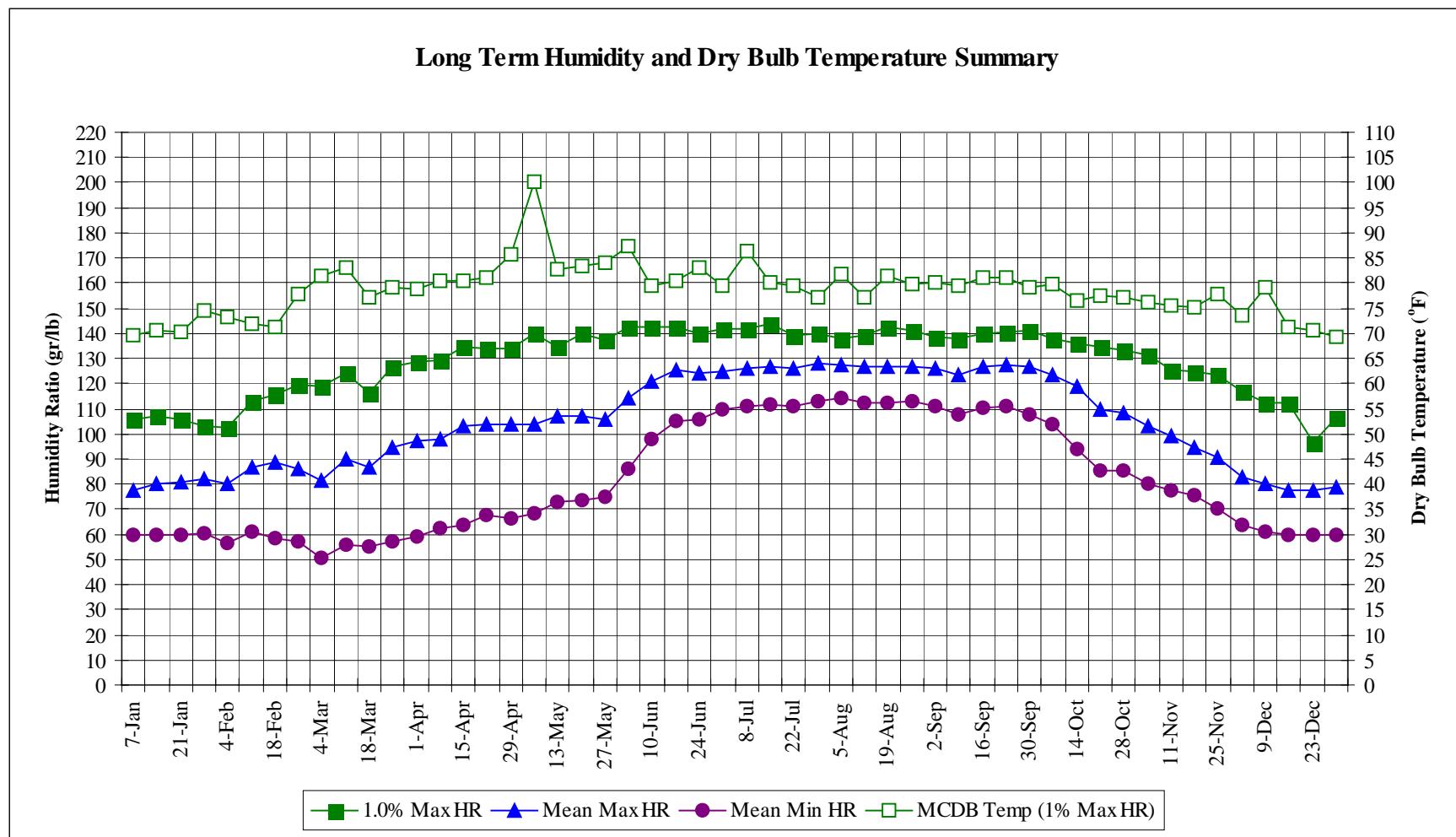
WMO No. 431280

**Annual Summary of Temperatures**



HYDERABAD, INDIA

WMO No. 431280



**HYDERABAD, INDIA**

WMO No. 431280

**Long Term Dry Bulb Temperature and Humidity Summary**

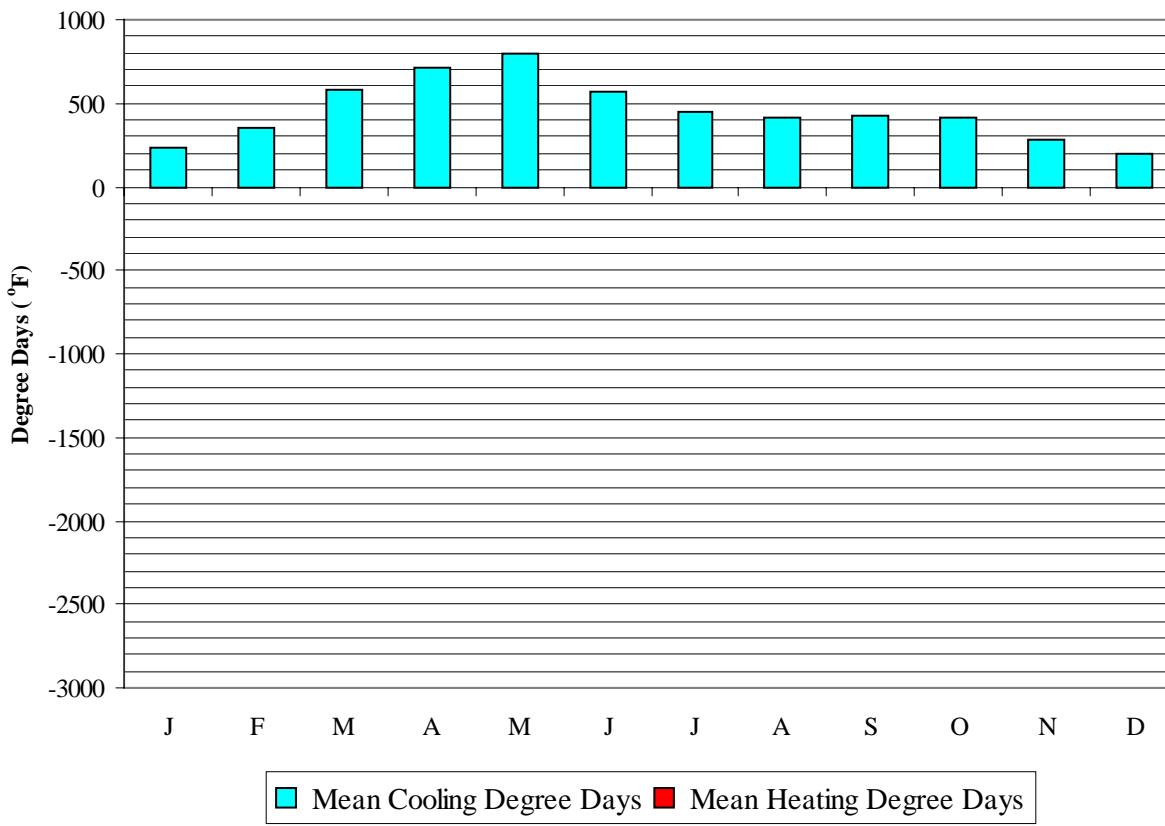
Week Ending	1.0% Temp (°F)	MCWB @ 1% Temp (°F)	Mean Max Temp (°F)	Mean Min Temp (°F)	99% Temp (°F)	1.0% HR (gr/lb)	MCDB @ 1% HR (°F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	86.0	63.6	80.1	61.4	54.0	105.7	69.5	77.3	59.5
14-Jan	86.0	64.6	80.8	62.1	55.0	107.1	70.7	80.3	60.0
21-Jan	88.0	62.2	82.1	63.1	57.0	105.7	70.2	81.0	59.7
28-Jan	88.0	63.9	83.3	64.2	59.0	102.9	74.6	82.0	60.7
4-Feb	90.0	63.7	85.0	64.6	59.0	102.2	73.3	80.2	56.5
11-Feb	91.0	64.1	85.7	66.4	61.0	112.7	72.0	86.4	60.9
18-Feb	93.0	66.1	88.1	68.1	63.0	115.5	71.3	88.8	58.6
25-Feb	93.0	64.7	88.4	68.8	62.0	119.7	77.7	86.0	57.1
4-Mar	96.0	64.0	90.7	69.3	63.0	119.0	81.5	81.8	50.8
11-Mar	98.0	66.3	92.4	71.7	66.0	123.9	83.0	89.7	55.8
18-Mar	99.0	68.7	94.5	72.7	67.0	116.2	77.1	86.9	54.9
25-Mar	100.0	68.8	96.0	75.0	71.0	126.7	79.0	94.3	57.3
1-Apr	100.0	68.0	95.8	75.5	68.0	128.8	78.8	97.1	59.1
8-Apr	102.0	68.4	97.2	77.6	73.0	129.5	80.3	98.0	62.7
15-Apr	103.0	70.3	99.1	78.8	72.0	134.4	80.3	102.8	63.4
22-Apr	104.0	68.5	99.2	79.8	73.0	133.7	81.0	103.7	67.8
29-Apr	105.0	67.3	99.4	79.9	73.0	133.7	85.6	103.4	66.3
6-May	105.0	70.0	100.2	81.3	76.0	140.0	100.0	103.5	68.1
13-May	107.0	71.1	100.1	81.6	73.0	134.4	82.9	106.8	72.7
20-May	107.0	71.4	100.2	82.0	72.0	140.0	83.5	106.7	73.6
27-May	108.0	69.9	100.3	83.0	75.0	137.2	84.0	105.9	74.7
3-Jun	106.0	73.3	98.5	81.3	75.0	142.8	87.4	114.6	86.3
10-Jun	104.0	73.0	94.9	79.3	73.0	142.8	79.5	121.1	97.6
17-Jun	100.0	74.2	91.4	77.0	72.0	142.8	80.4	125.2	105.0
24-Jun	96.0	74.8	88.9	76.0	72.0	140.0	83.0	123.8	105.8
1-Jul	94.0	74.4	87.5	75.6	72.0	142.1	79.6	125.1	109.5
8-Jul	93.0	74.5	86.4	75.0	72.0	142.1	86.3	125.8	110.9
15-Jul	91.0	73.5	85.6	74.8	72.0	143.5	80.0	126.5	111.8
22-Jul	93.0	74.0	85.2	74.4	71.0	139.3	79.3	126.3	111.0
29-Jul	91.0	73.9	84.9	74.0	72.0	140.0	77.3	128.3	112.6
5-Aug	90.0	74.6	83.9	73.6	71.0	137.9	81.8	127.4	114.1
12-Aug	89.0	74.7	83.6	73.4	72.0	139.3	77.3	126.9	112.3
19-Aug	88.0	74.2	83.4	73.4	71.0	142.8	81.3	126.8	112.6
26-Aug	90.0	73.9	84.1	73.7	72.0	141.4	79.8	127.0	112.7
2-Sep	90.0	73.5	84.0	73.6	72.0	138.6	80.3	125.8	110.9
9-Sep	90.0	73.0	85.1	73.6	70.0	137.9	79.5	123.7	107.7
16-Sep	91.0	73.7	85.5	74.0	71.0	140.0	81.0	126.7	110.5
23-Sep	93.0	73.7	86.2	73.8	71.0	140.7	81.0	127.3	110.7
30-Sep	92.0	74.3	86.5	73.9	71.0	141.4	79.3	126.9	107.8
7-Oct	91.0	70.5	85.7	72.9	70.0	137.9	79.8	123.5	103.4
14-Oct	92.0	69.3	86.6	72.2	68.0	135.8	76.5	118.7	94.1
21-Oct	91.0	68.1	85.3	70.8	66.0	134.4	77.5	109.7	85.5
28-Oct	91.0	63.8	84.7	69.7	64.0	133.0	77.2	108.1	85.3
4-Nov	88.0	66.9	83.4	68.8	62.0	131.6	76.3	102.9	80.4
11-Nov	88.0	67.8	83.0	67.5	59.0	125.3	75.5	99.3	77.2
18-Nov	87.0	68.8	81.8	66.5	57.0	124.6	75.2	94.9	75.4
25-Nov	86.0	67.5	81.7	64.7	57.0	123.2	77.8	90.3	70.3
2-Dec	85.0	65.3	81.2	63.0	55.0	116.9	73.7	83.0	63.7
9-Dec	85.0	67.7	81.0	62.3	55.0	112.0	79.0	80.3	61.1
16-Dec	85.0	65.2	79.9	61.0	54.0	112.0	71.3	77.2	60.1
23-Dec	84.0	63.2	79.8	60.7	55.0	96.6	70.7	77.5	59.7
31-Dec	84.0	63.8	79.7	61.5	54.0	106.4	69.3	79.0	59.7

**HYDERABAD, INDIA**

WMO No. 431280

**Degree Days, Heating and Cooling**

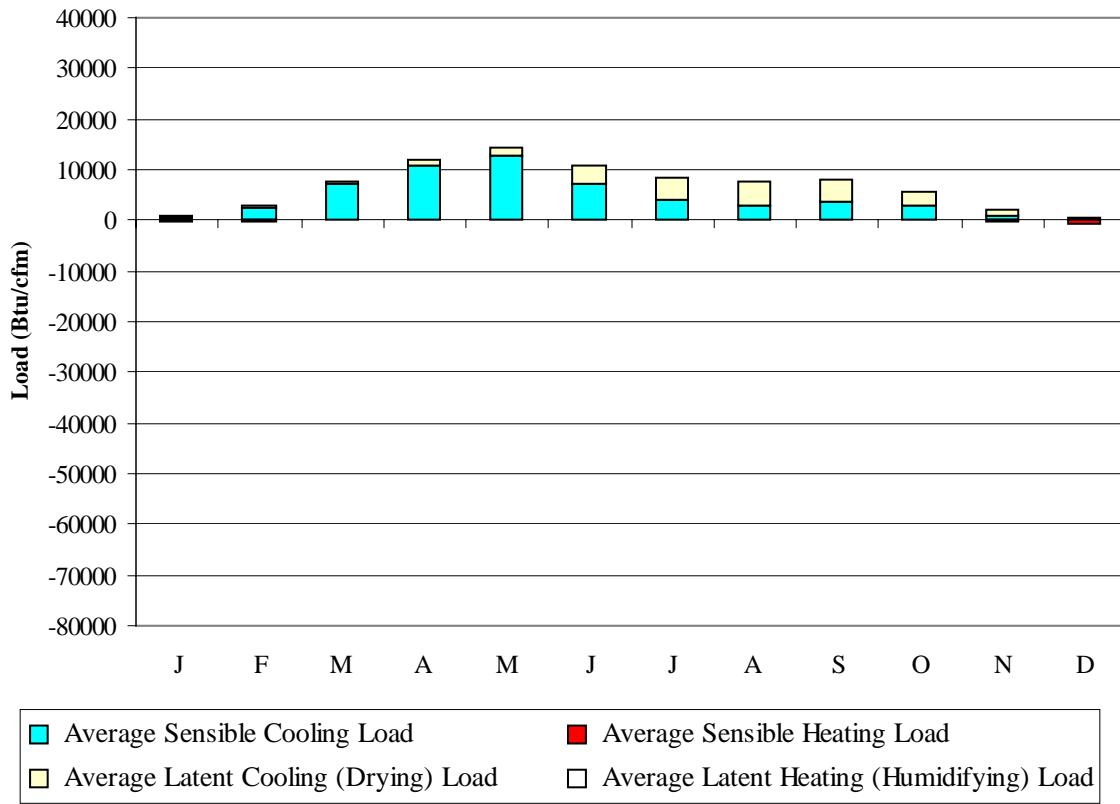
(Base 65°F)



■ Mean Cooling Degree Days ■ Mean Heating Degree Days

	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	237	7
FEB	355	1
MAR	583	0
APR	717	0
MAY	794	0
JUN	570	0
JUL	450	0
AUG	409	0
SEP	428	0
OCT	411	0
NOV	278	3
DEC	197	10
ANN	5428	21

**Average Ventilation and Infiltration Loads**  
**(Outside Air vs. 75°F, 60% RH summer; 68°F, 30% RH winter)**



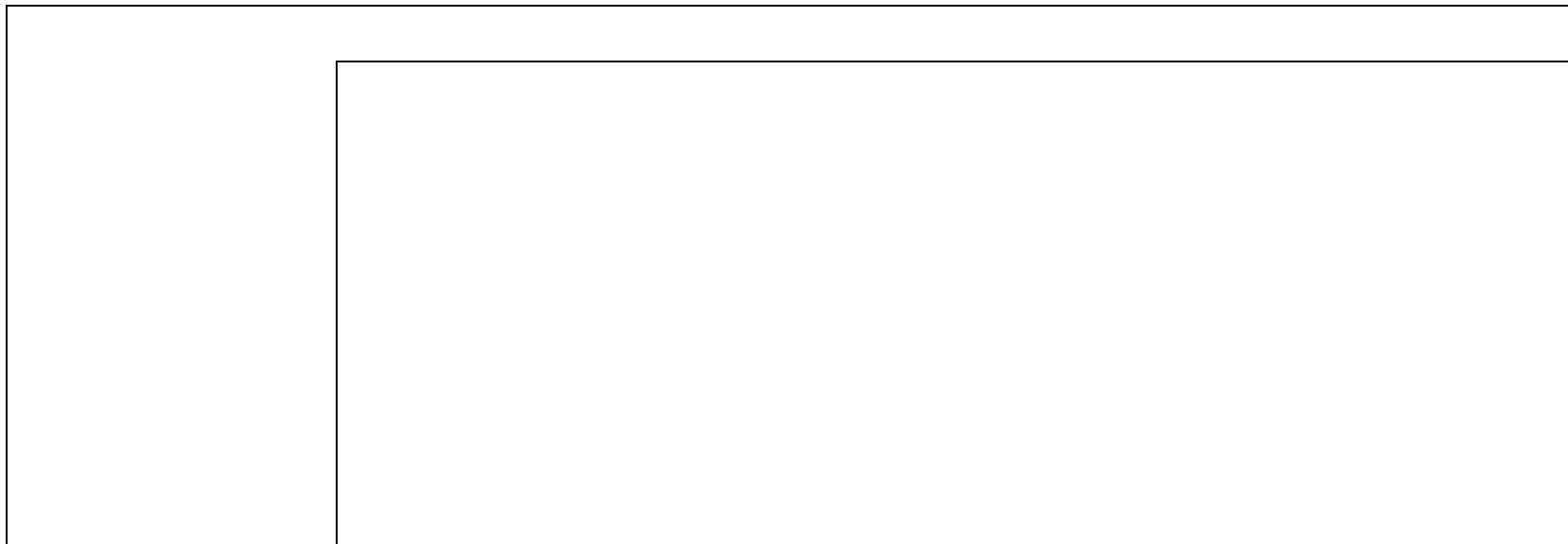
■ Average Sensible Cooling Load	■ Average Sensible Heating Load
□ Average Latent Cooling (Drying) Load	□ Average Latent Heating (Humidifying) Load

	Average Sensible Cooling Load	Average Sensible Heating Load	Average Latent Cooling Load	Average Latent Heating Load
	(Btu/cfm)	(Btu/cfm)	(Btu/cfm)	(Btu/cfm)
JAN	639	-422	258	-4
FEB	2497	-66	458	-17
MAR	7103	-7	659	-7
APR	10765	0	1084	-2
MAY	12764	0	1522	-1
JUN	7259	0	3576	0
JUL	4022	0	4528	0
AUG	3002	-1	4585	0
SEP	3693	0	4262	0
OCT	2969	-17	2831	0
NOV	1020	-197	1155	-1
DEC	410	-643	255	-2
ANN	56143	-1353	25173	-34

### Average Annual Solar Radiation – Nearest Available Site

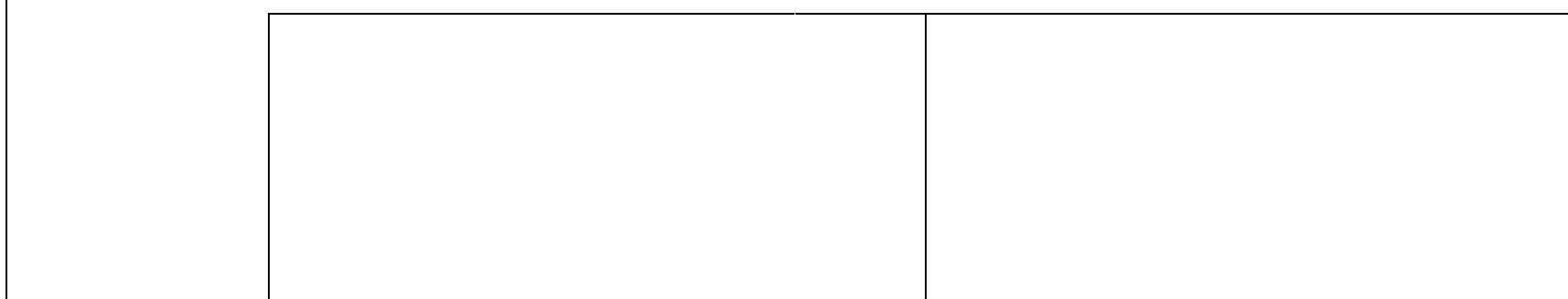
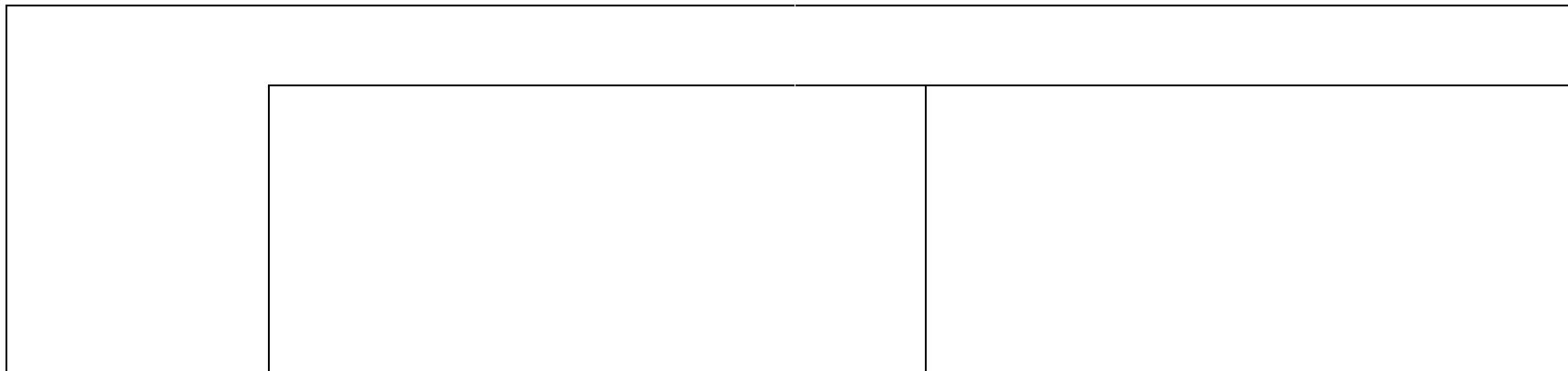
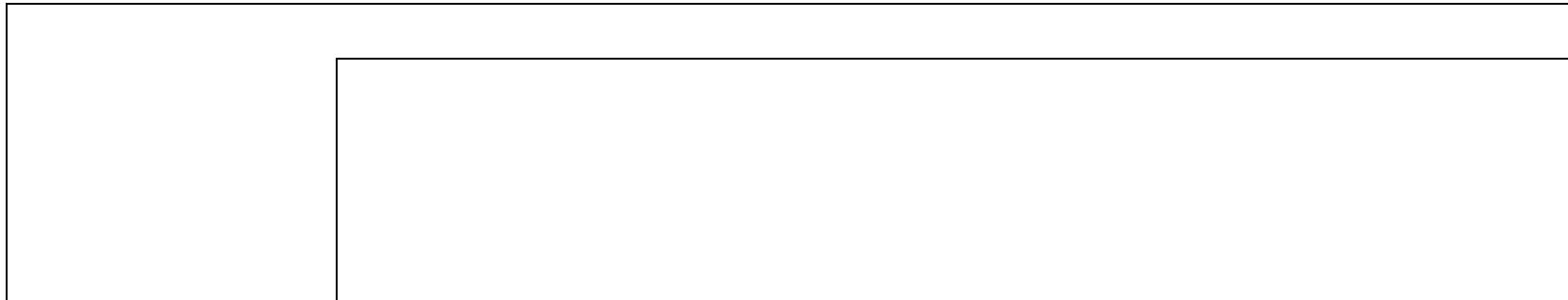
(Source: National Renewable Energy Laboratory, Golden CO, 1995)

No Solar Radiation  
Data Available



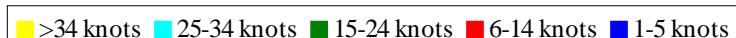
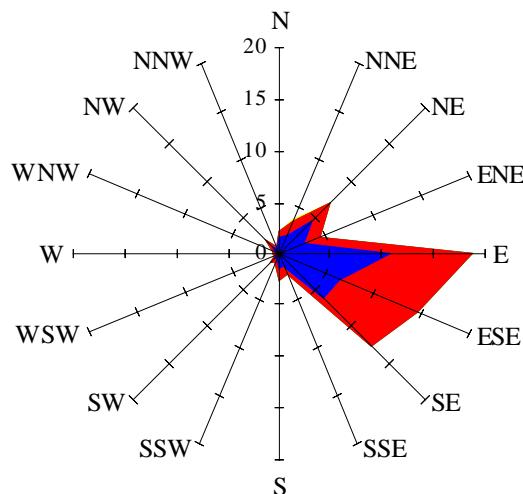
**Average Annual Solar Heat and Illumination – Nearest Available Site**

(Source: National Renewable Energy Laboratory, Golden CO, 1995)



### Wind Summary - December, January, and February

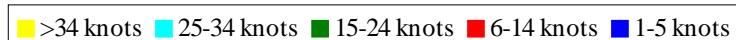
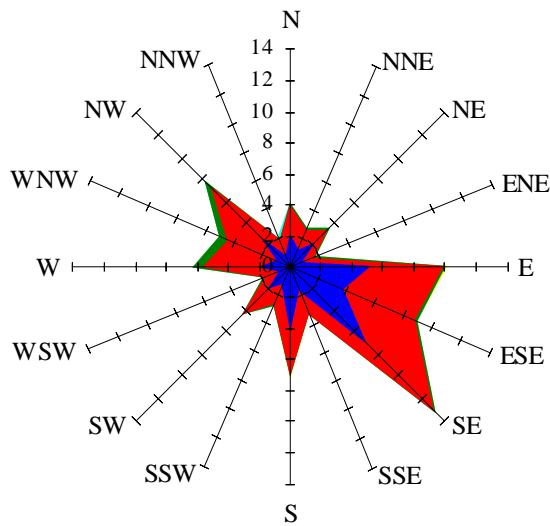
Labels of Percent Frequency on North Axis



Percent Calm = 26.83

### Wind Summary - March, April, and May

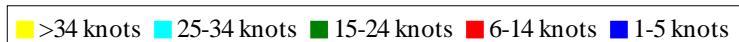
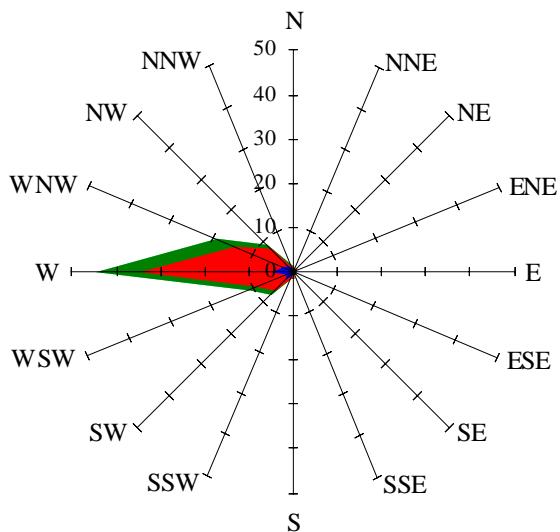
Labels of Percent Frequency on North Axis



Percent Calm = 16.95

### Wind Summary - June, July, and August

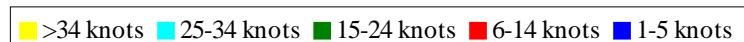
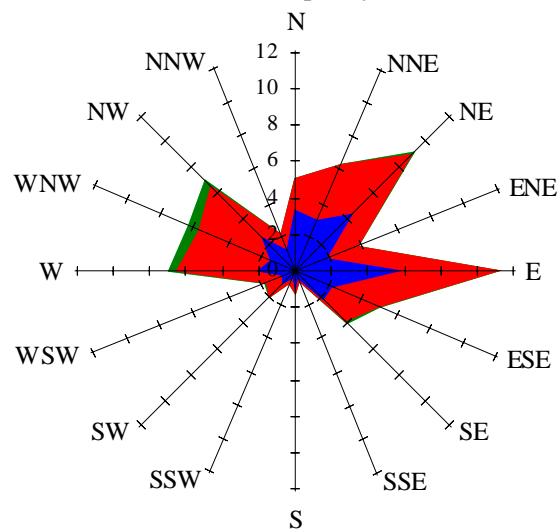
Labels of Percent Frequency on North Axis



Percent Calm = 5.33

### Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 27.21